



COMPLETE DATA SCIENTIST ROADMAP

Fundamentals to Projects





Why Choose Data Science Field?

- 👉 Tech industries are increasingly rely on data-driven decision-making
- 👉 Data science has become a crucial discipline for organisations across all industries.
- 👉 Building a career in data science can be challenging
- 👉 Here is a well-defined roadmap that can help you navigate this landscape and build a successful career in data science.



Disclaimer

To become a Data Scientist,
journey is long.

So take some steps every day to reach
your goal.

Master Fundamentals, and through the
journey to stay strong.

And don't skip any of the steps, to
become a Data Scientist as a whole.



12 weeks

#1 Fundamentals

Master the fundamentals of statistics, mathematics, and programming.

- Tableau and Excel:** Visual Analytics, Operations on data and calculations in Tableau, Pivot tables, Charts and Statistical functions
- SQL:** Databases, Functions, filtering and subqueries, Joins, Group by and Aggregation, Indexes and Partitioning
- Python Basics:** Flowcharts, Data types, Operators, Conditional statements and loops, Functions, Strings, Lists, Tuples, Dictionaries
- Matrix Algebra and Number Systems**



8 weeks

#2 Data analysis and visualisation

Master how to analyse, interpret, and present data.

- Python libraries:** Numpy, Pandas, Matplotlib, Seaborn, Data Acquisition, Web API and BeautifulSoup, Tweepy
- Probability and Applied Statistics:** Bayes Theorem, Distributions, Descriptive Statistics, Outlier treatment, Central limit theorem, Hypothesis testing, ANOVA, EDA, Feature Engineering, Experiment Design, Regex, NLTK, OpenCV



8 weeks

#3 Foundations of Machine Learning and Deep Learning

Master supervised learning, unsupervised learning, and deep learning, as well as the tools and frameworks used to implement these techniques.

- Advanced Python:** Time and Space Complexities, OOPS Concepts, Functional Programming, Exception Handling
- Maths for Machine Learning:** Classification, Hyperplanes, Halfspaces, Calculus, Optimization, Gradient Descent and Principal Component Analysis
- Neural Networks and Machine Learning:** Linear Regression, Polynomial, Bias-Variance, Regularisation, Cross Validation, Logistic Regression, Perceptron and Softmax Classification, K Means Clustering, Hierarchical Clustering



8 weeks

#4 Advanced Machine Learning and Deep Learning

Master Natural language processing and convolutional neural networks.

- Supervised Learning:** MLE, MAP, Classification metrics, Imbalance Data, Decision Trees, Bagging, Naive Bayes Classifier, SVM
- Machine Learning:** Clustering, GMM, Anomaly/Outlier Detection, PCA, t-SNE, Recommender Systems, Time Series Analysis
- Deep Learning- Neural Networks:** Perceptrons, Hidden Layers, Tensorflow, Keras, Forward and Back Propagation, Multilayer Perceptrons, Callbacks, Tensorboard, Hyperparameter Tuning, LSTM, BERT



2 weeks

#5 PROJECTS

Build projects to document and display your learning process:

- Use real world datasets and try to solve real world problems
- Make use of different algorithms and techniques
- Present your findings in a clear way
- Show willingness to learn from challenges be it collecting data or finding proper parameters to solve problems
- Make unique projects such as web apps, dashboards to stand out



2 weeks

#6 Resume Building and Mock Interviews

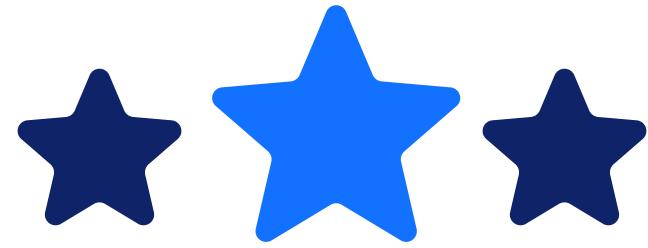
- Create a stellar resume with your skills and projects
- Learn in public by showing your progress and work
- Take mock interviews to understand your weak points
- Look into company specific questions and requirements



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